NOAA Climate Science & Services Monthly Climate Update

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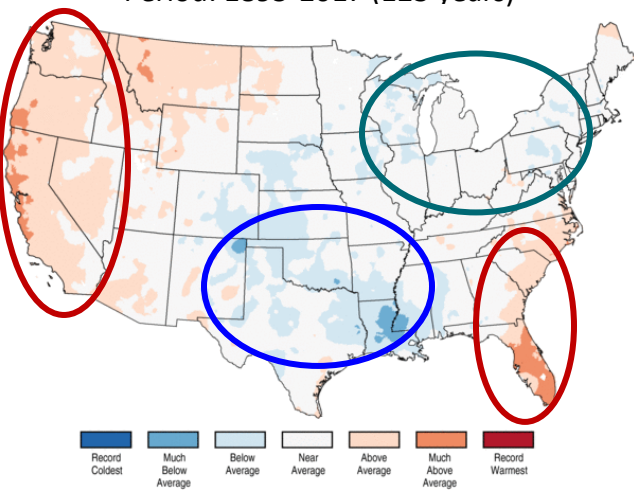
June 2017

Contiguous U.S. Temperatures 2017

May was slightly warmer than average

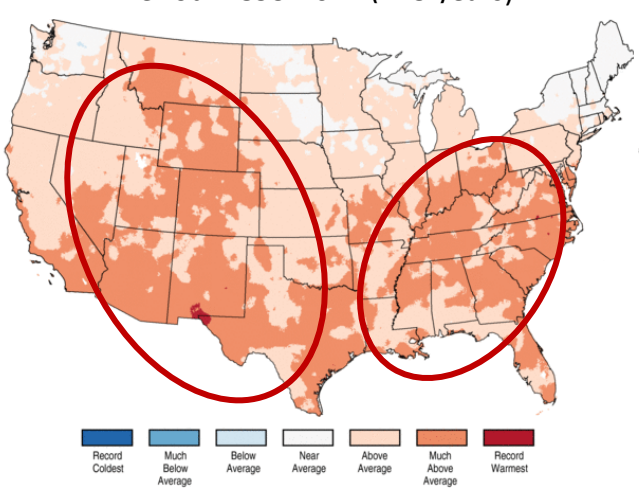
Temperature Percentiles May 2017
Period: 1895-2017 (123 years)



- Warmth along the West Coast and in Florida
- Below-average temperatures in the south-central US
- Warm nighttime temperatures and cool daytime temperatures in the Midwest to Northeast

Spring was the 8th warmest on record

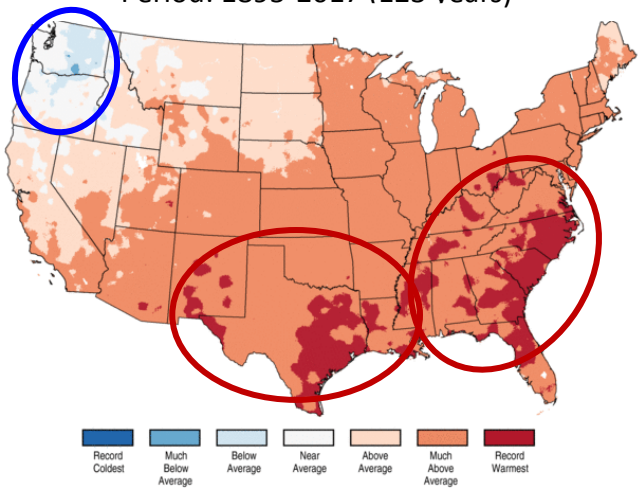
Temperature Percentiles Spring 2017
Period: 1895-2017 (123 years)



- Above-average temperatures in the Rockies, South, and Southeast
- Much of the spring warmth came early in the season – 11th warmest April and 9th warmest March

Jan-May was 2nd warmest on record

Temperature Percentiles Jan-May 2017
Period: 1895-2017 (123 years)

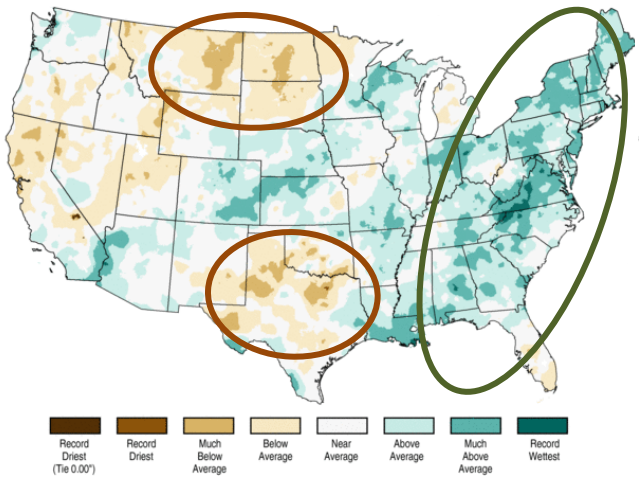


- Record warm in the Southern Plains and Southeast: FL, GA, NC, SC, and TX record warm
- Below-average temperatures in parts of the Northwest. WA only cooler than average state

Contiguous U.S. Precipitation 2017

May was wetter than average

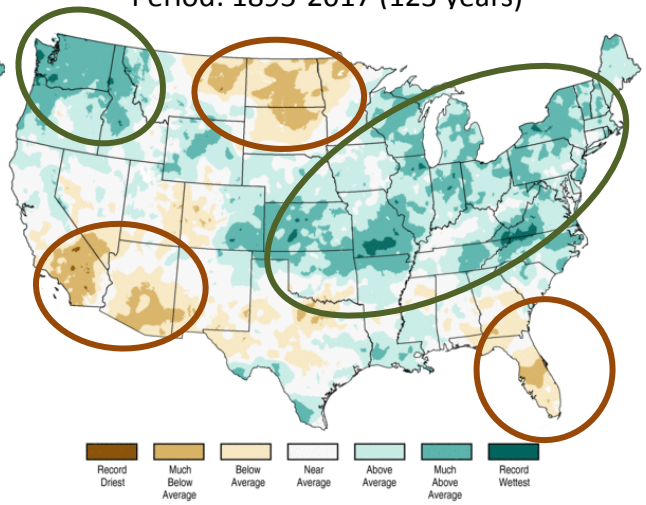
Precipitation Percentiles May 2017
Period: 1895-2017 (123 years)



- Wetter than average in the East – record precipitation for parts of the central Appalachians
- Drier than average in the Northern and Southern Plains. Drought expanded in the Northern Plains

Spring was the 11th wettest on record

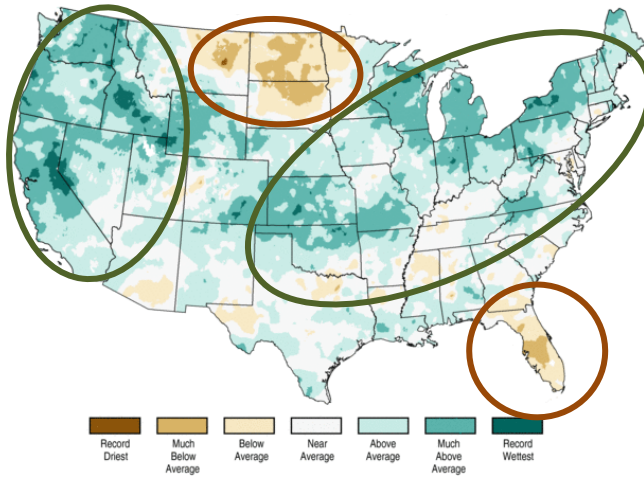
Precipitation Percentiles Spring 2017
Period: 1895-2017 (123 years)



- Wetter than average in the Northwest
- Record precipitation in the Mid-Mississippi Valley and central Appalachians
- Drier than average in the Northern Plains, Southwest, and Florida

Jan-May was 4th wettest on record

Precipitation Percentiles Jan-May 2017
Period: 1895-2017 (123 years)



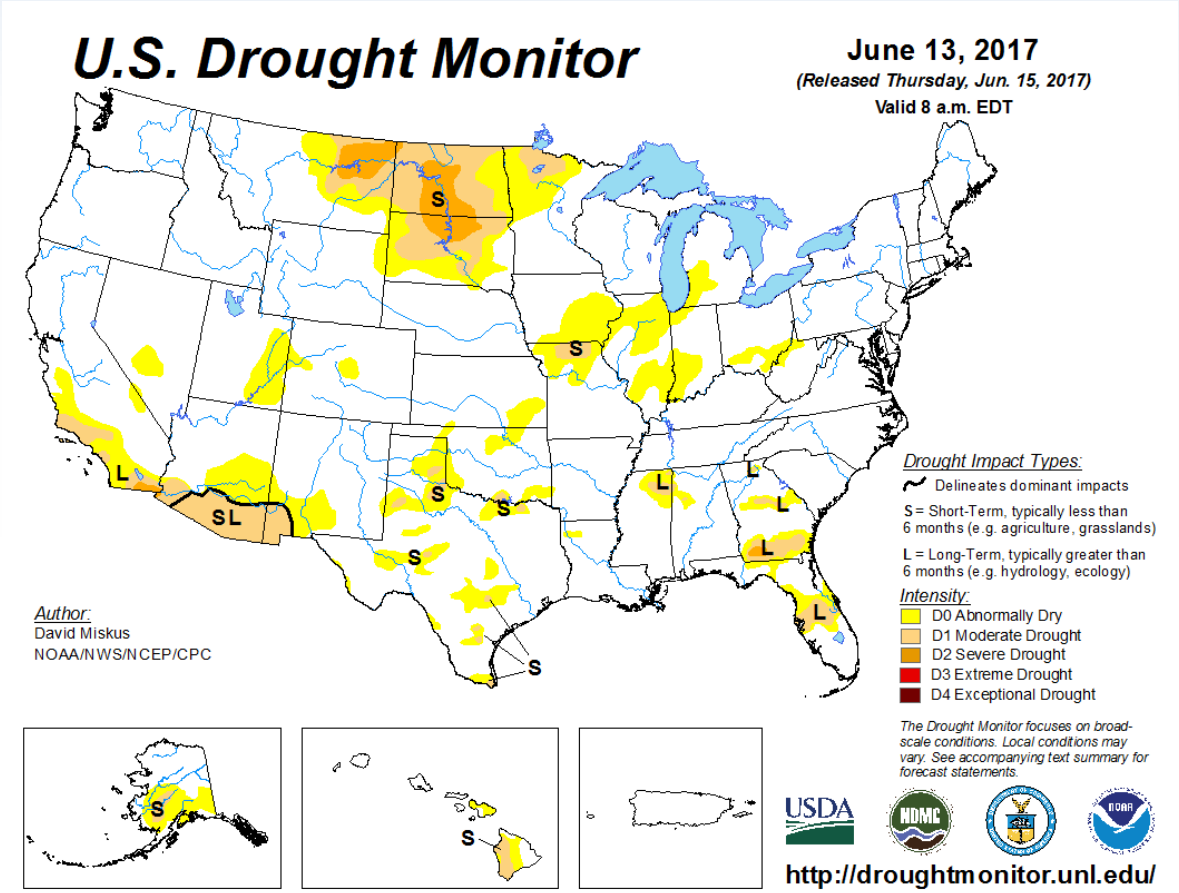
- Record and near-record precipitation across much of the West.
- Wetter than average across the Central Plains to Midwest and Northeast
- Drier than average in the Northern Plains and Florida

Current U.S. Drought

7.3% of Contiguous U.S. in Drought

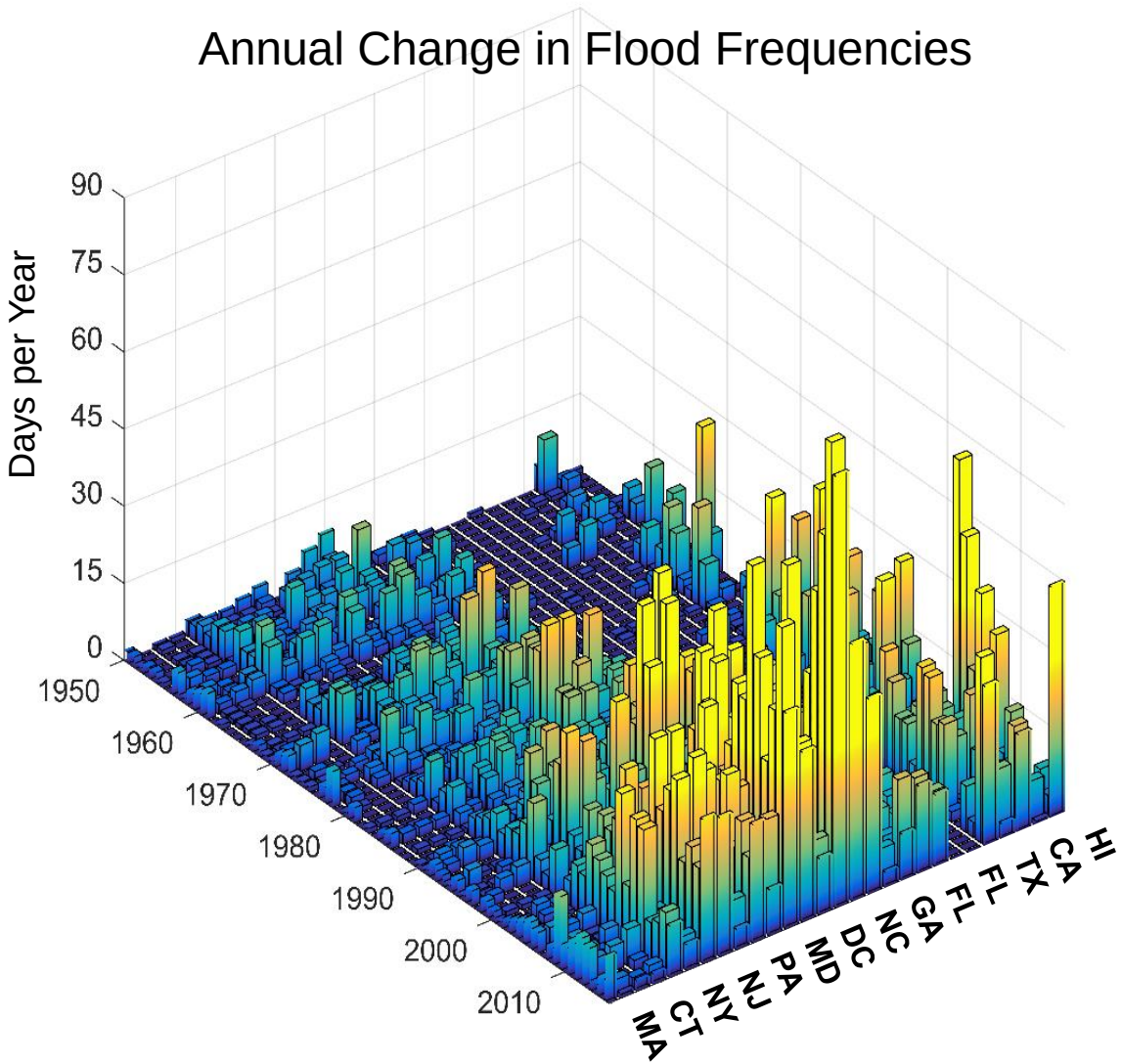
(↓2.6 percentage points since early Apr)

- Improvement: Central and Southern Plains, Southeast, and Northeast
- Degradation: Northern Plains and Southwest
- Outside CONUS: Drought improved in Hawaii with abnormally dry conditions in Alaska



High Tide Flooding in U.S.

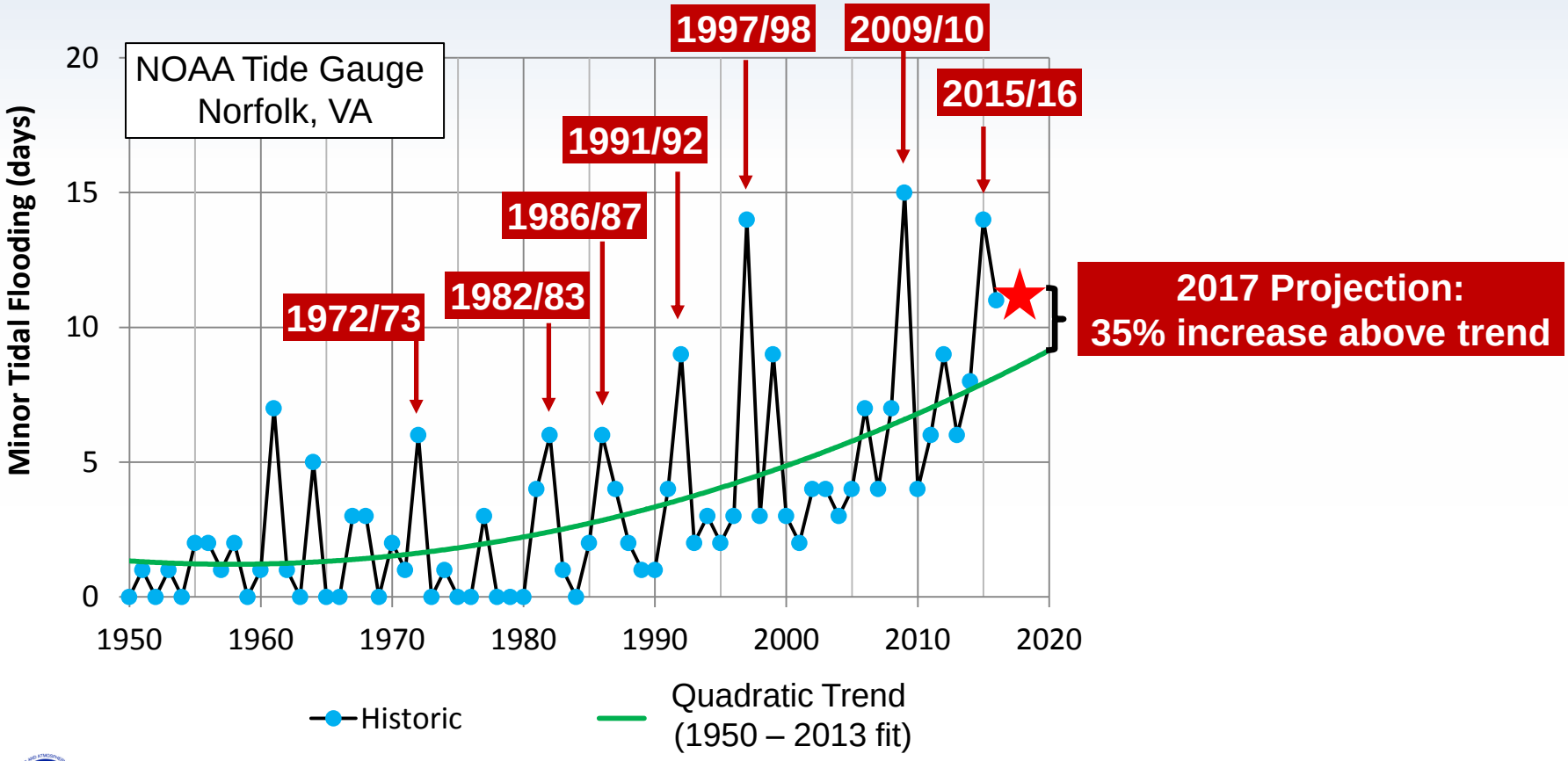
- Due to sea level rise (SLR), flood frequency trends (linear, quadratic) are rapidly increasing
- Upwards of 300 to 1000% increase since 1960s
- Elevation thresholds when impacts occur vary by location
- Seasonal high tides and minor wind events now cause high tide flooding in many locations



(Sweet et al., 2017)

High Tide Flooding and El Nino in U.S.

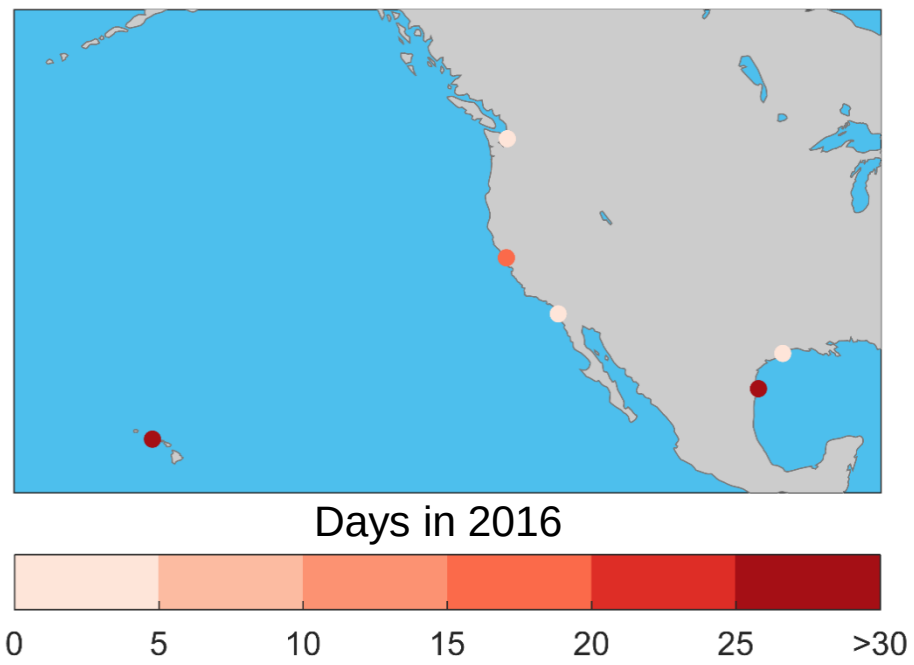
- During El Nino, West and East Coast regions typically (statistically significant) experience more tidal flooding than (trend) normal
- Models suggest a mild El Nino might form this year -- more flooding (red star)

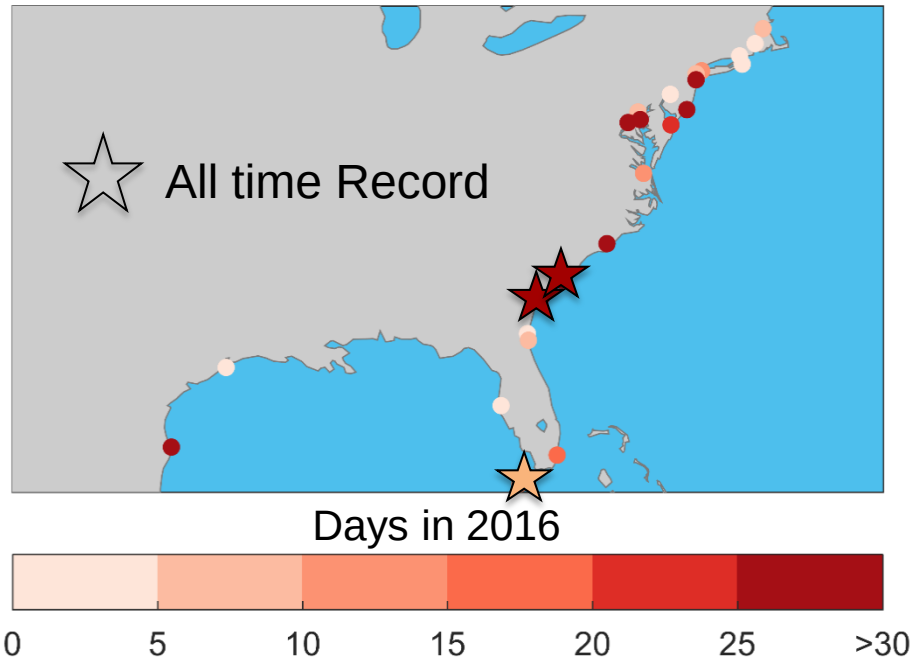


(after Sweet and Park, 2014)

2016 High Tide Flooding in U.S.

- High tide flooding broke 2 records (Charleston: 50 days; Savannah: 38 days) and tied 1 record (Key West: 14 days)
- Flooding in 2016 was about or above trend-expected values at most locations (130% higher on average compared to 1995)
- Flooding most frequent where 2016 sea levels higher and flood elevations lower

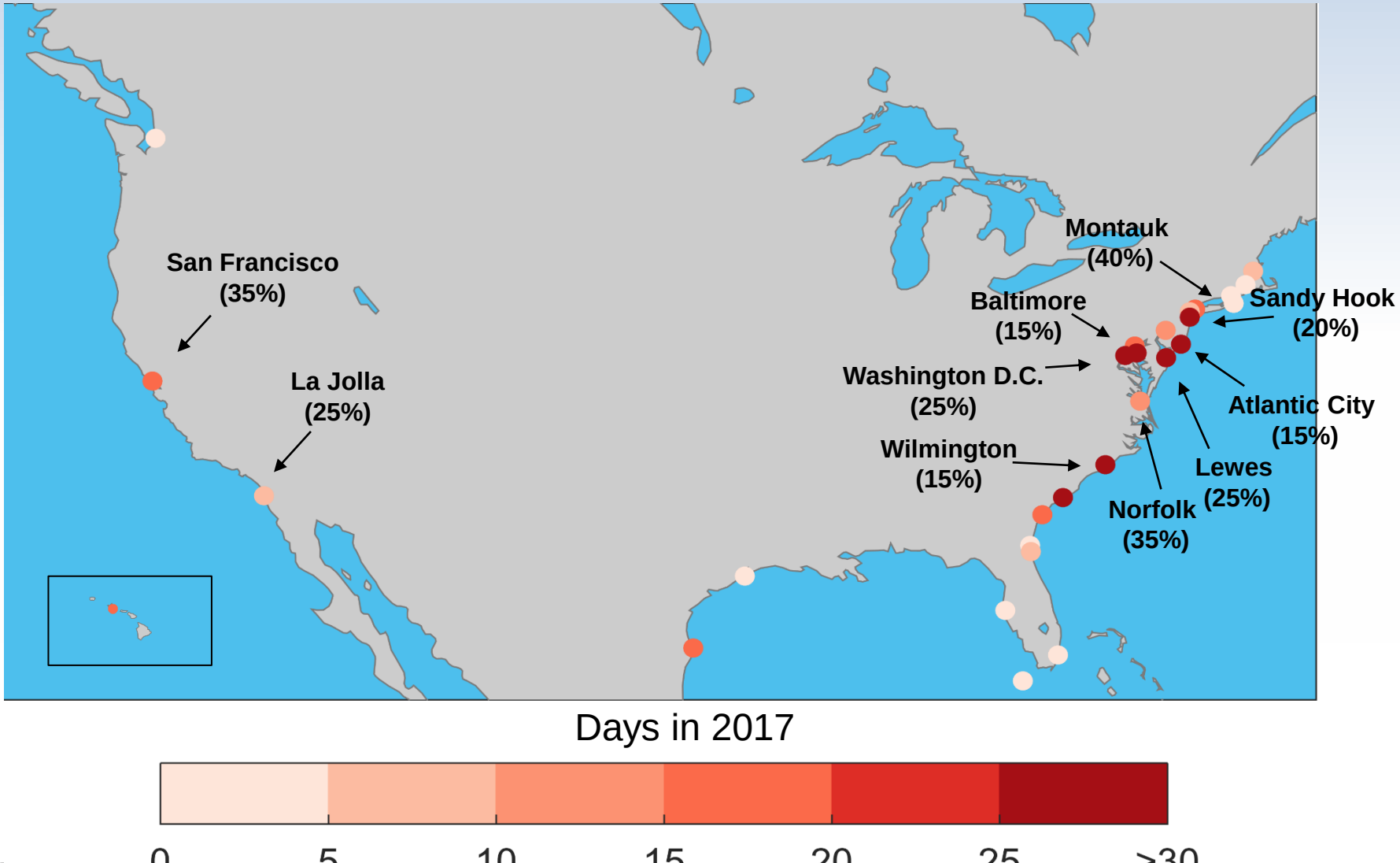




(Sweet et al., 2017)

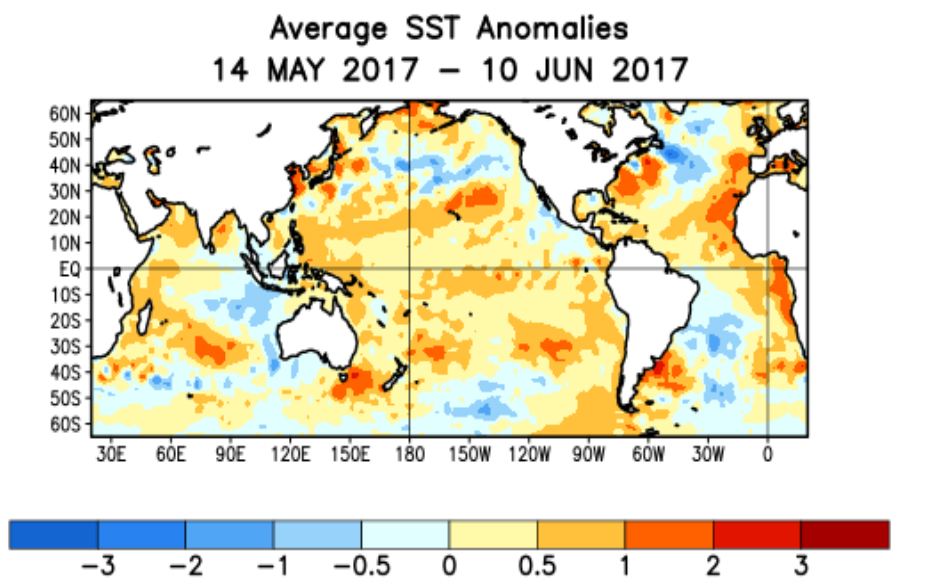
2017 High Tide Flood 'Outlook'

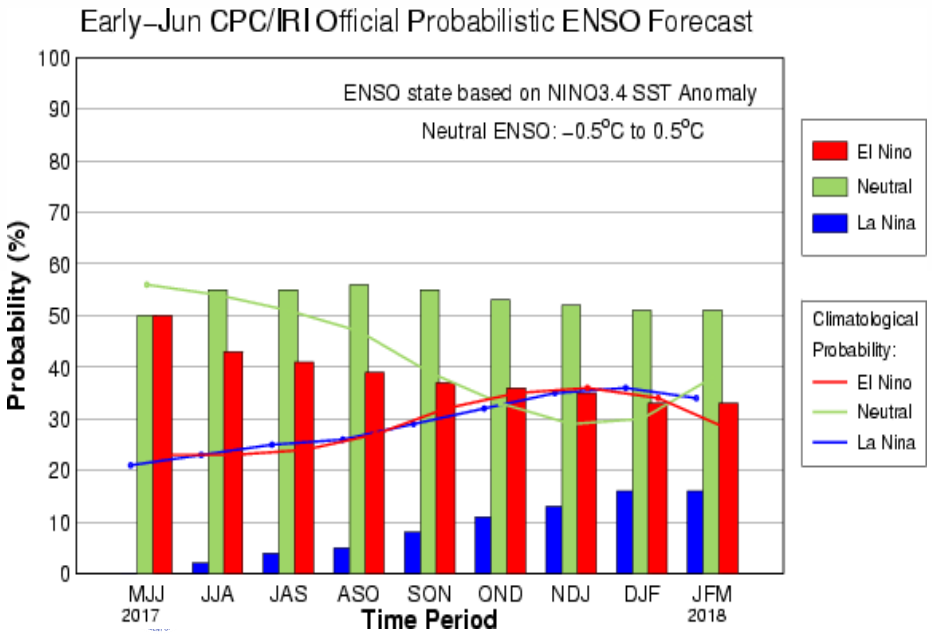
Based upon trend (and % increase from El Nino pattern)



(Sweet et al., 2017)

Sea Surface Temperatures and ENSO





Sea surface temperatures

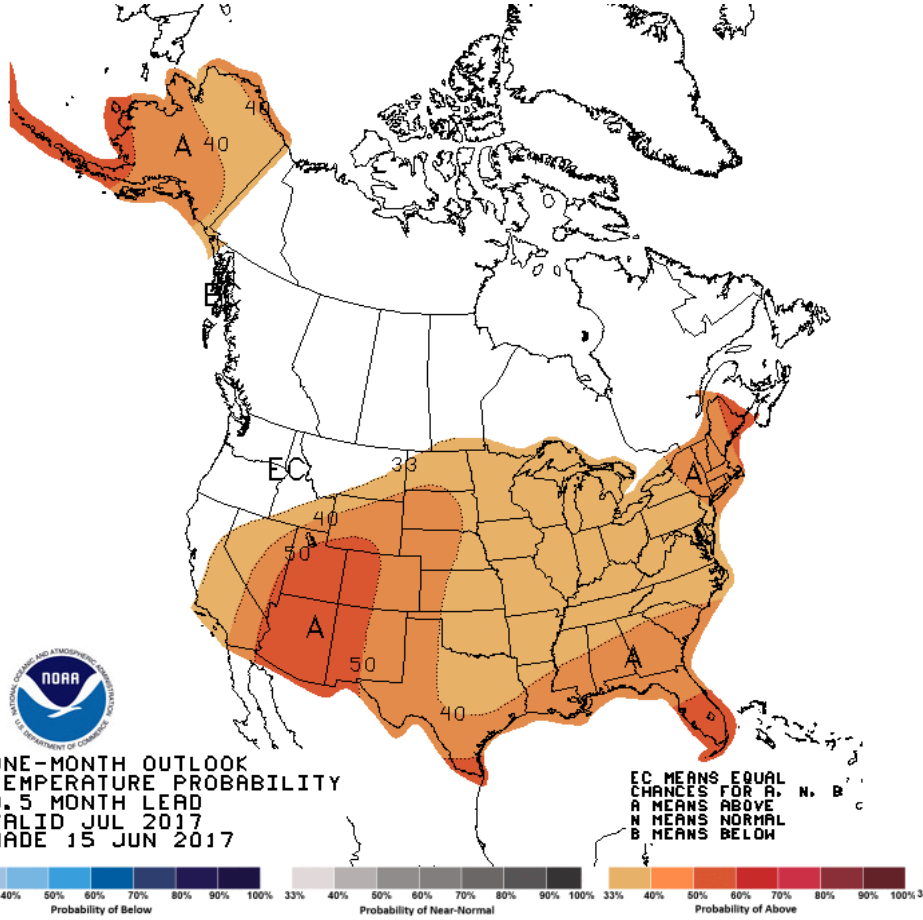
- Above normal SSTs in the central and eastern Pacific although the upper-ocean heat anomaly decreased this past month
- Above normal SSTs in the tropical Atlantic
- ENSO neutral conditions are present, given the state of the ocean and atmosphere

ENSO forecast

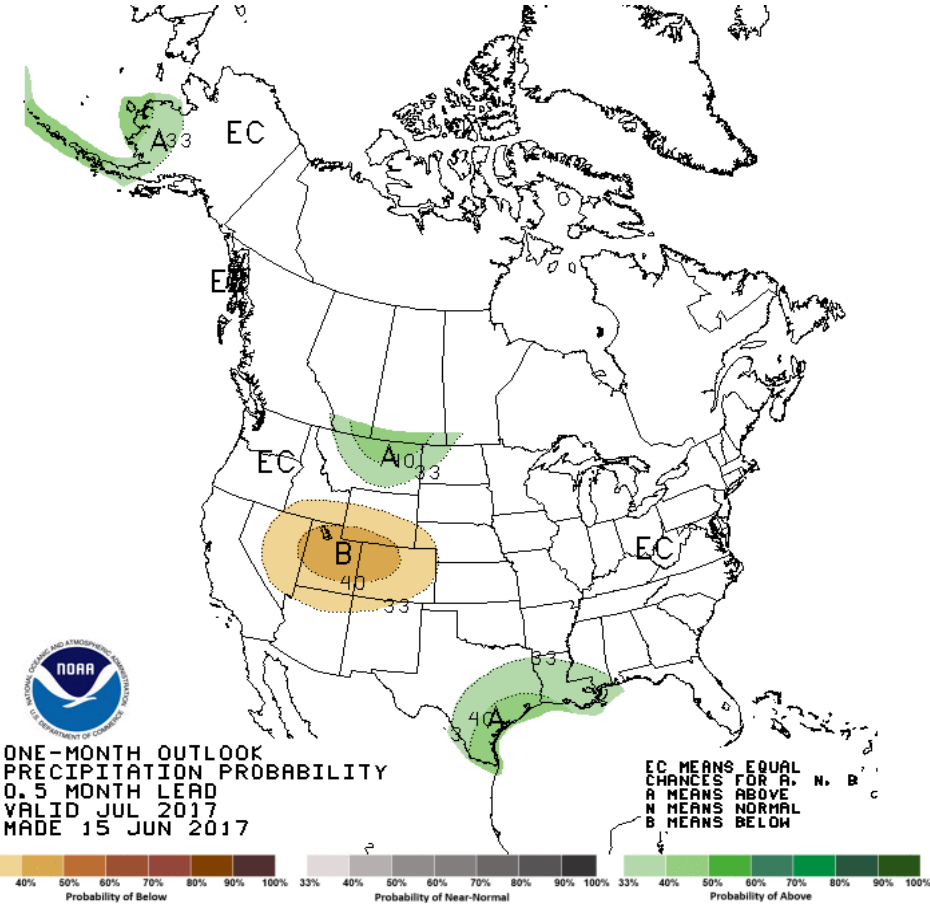
- ENSO neutral is the most likely outcome through the fall and winter 2017-18
- The chances of El Niño development are similar to climatology by the fall
- A repeat of La Niña is unlikely in 2017

Monthly Forecast (July)

July Average
Temperature Probability

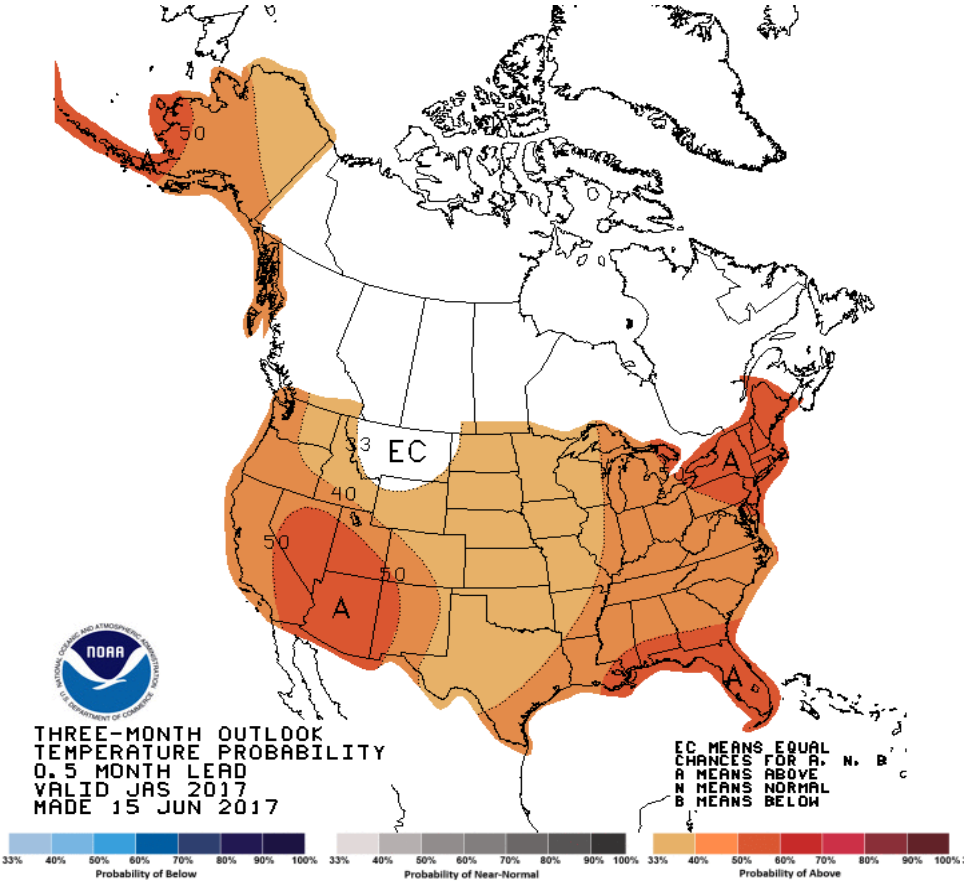


July Total
Precipitation Probability

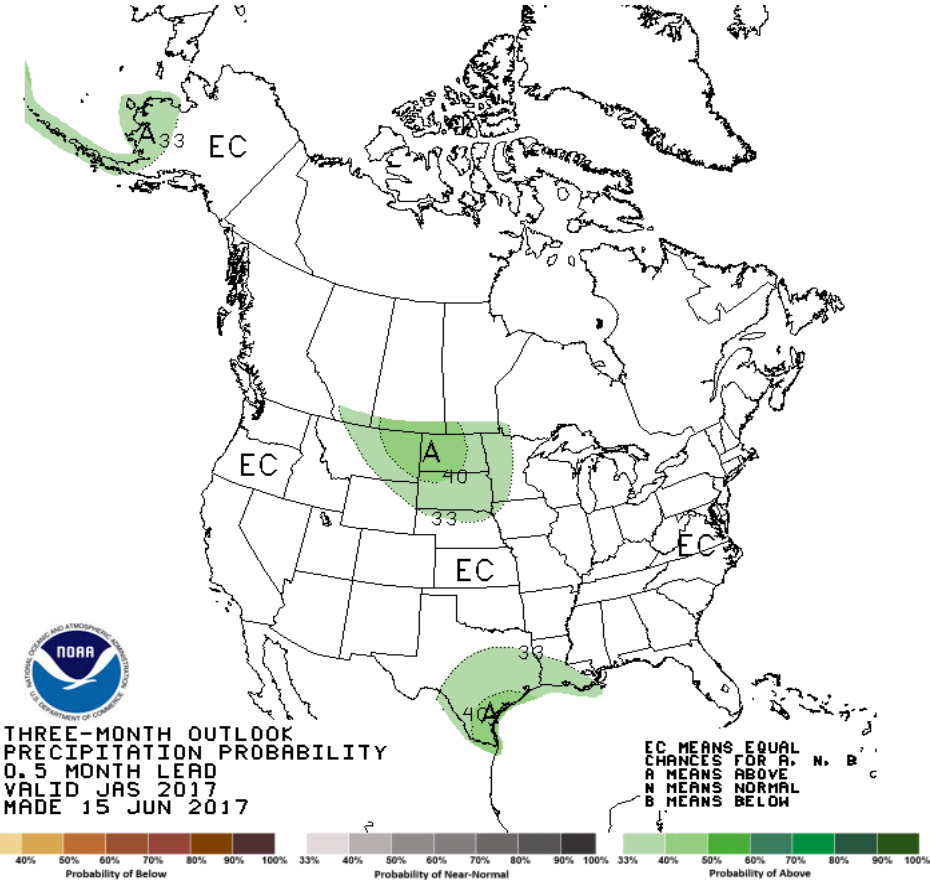


Seasonal Forecast (July-Aug-Sep)

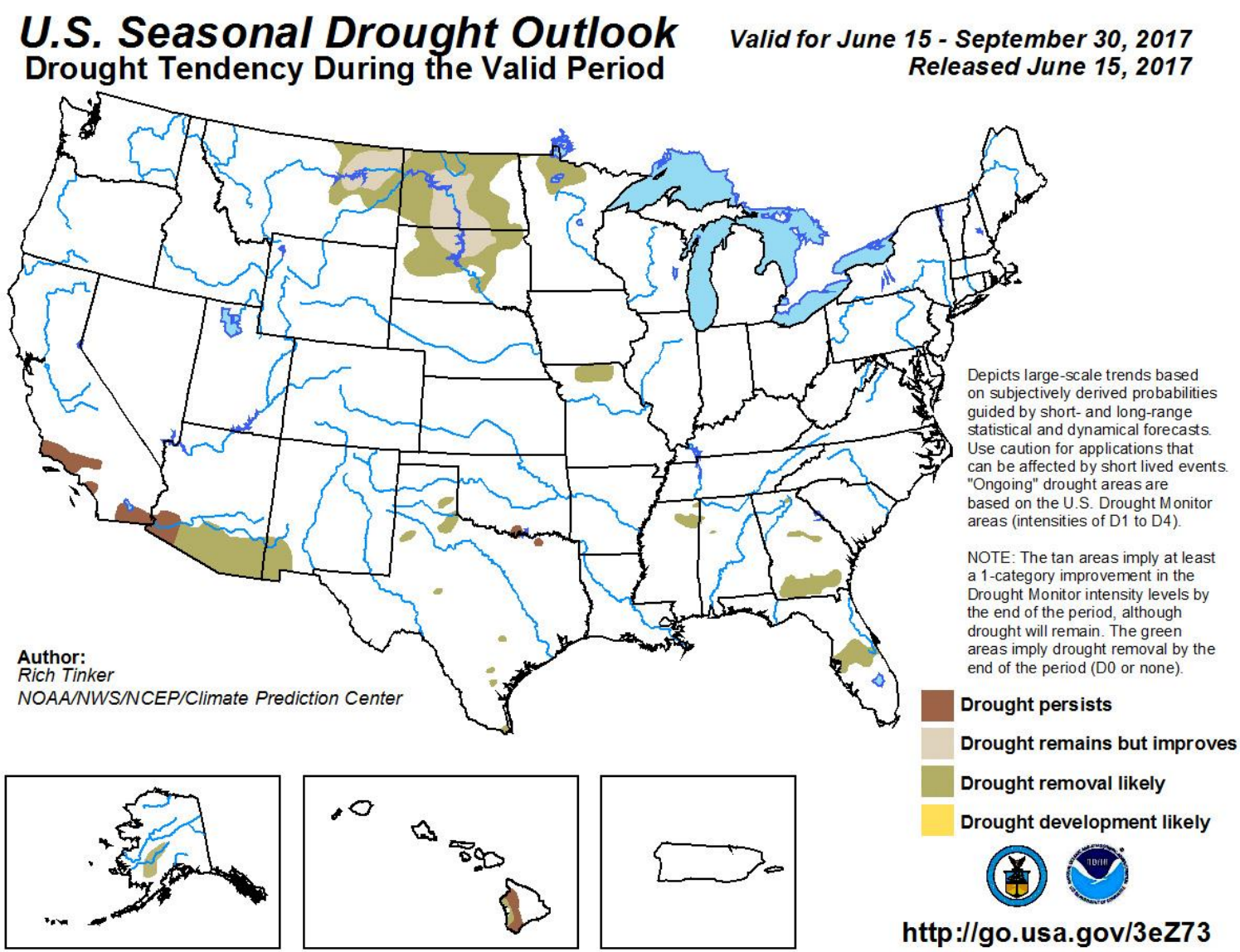
July-Aug-Sep Average Temperature Probability



July-Aug-Sep Total Precipitation Probability



U.S. Drought Outlook



For More Information

TODAY'S PRESENTATION:

- http://www.ncdc.noaa.gov/sotc/briefings

NOAA's National Centers for Environmental Information: www.ncdc.noaa.gov

- Monthly climate reports (U.S. & Global): www.ncdc.noaa.gov/sotc/
- Dates for upcoming reports: http://www.ncdc.noaa.gov/monitoring-references/dyk/monthly-releases

NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov

U.S. Drought Monitor: http://drought.gov

Climate Portal: www.climate.gov

2016 State of High Tide Flooding Report:
https://www.ncdc.noaa.gov/sotc/national/2017/05/supplemental/page-1

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